

CAMEX-4 Hurricane Evacuation Procedures

The following are guidelines that should be followed in the event that a hurricane is predicted to make landfall in any of the CAMEX-4 operational areas. Since the majority of participants will be located on military installations, the actions taken will be governed by the specific hurricane condition that base has announced. These conditions are normally posted at the base security gates. The project office will also post the latest condition in the CAMEX-4 hangar / lab area, and on the deployment site message phone at Jacksonville NAS.

Hurricane Conditions of Readiness

The Navy will indicate the hurricane's estimated time of impact by announcing a "Condition" of readiness alert. Five separate hurricane conditions are used to provide orderly and thorough preparations to minimize the effects on personnel and property. Progress through these conditions of readiness may not be as expected since the storm system may change course or acceleration rapidly. It is possible to go directly from Condition Three to Condition One, while ensuring all precautionary measures are executed as quickly as possible. These storm conditions of readiness are issued by the base Commanding Officer (CO) and are not to be questioned.

DOD Tropical Storm / Hurricane Forecast Warning Conditions:

Condition 5 – Normal condition of readiness set during the annual hurricane season (Jun 1 – Nov 30).

Condition 4 – Destructive force winds (> 50 knots) are possible within 72 hours.

Condition 3 – Destructive winds expected within 48 hours.

Condition 2 – Destructive winds expected within 24 hours.

Condition 1 – Imminent threat of destructive winds expected within 12 hours.

Equivalent Civilian Forecast Terminology:

Tropical Storm / Hurricane Watch – Storm conditions are possible within 36 hours

Tropical Storm / Hurricane Warning – Storm conditions are expected within 24 hours

Public Evacuation Order Issued – Issued between 12 – 22 hours prior to landfall.

Saffir Simpson Hurricane Rating Scale:

Category 1 – Winds of 74-95mph; Storm surge 4'-5' above normal

Category 2 – Winds of 96-110 mph; Storm surge 6'-8' above normal

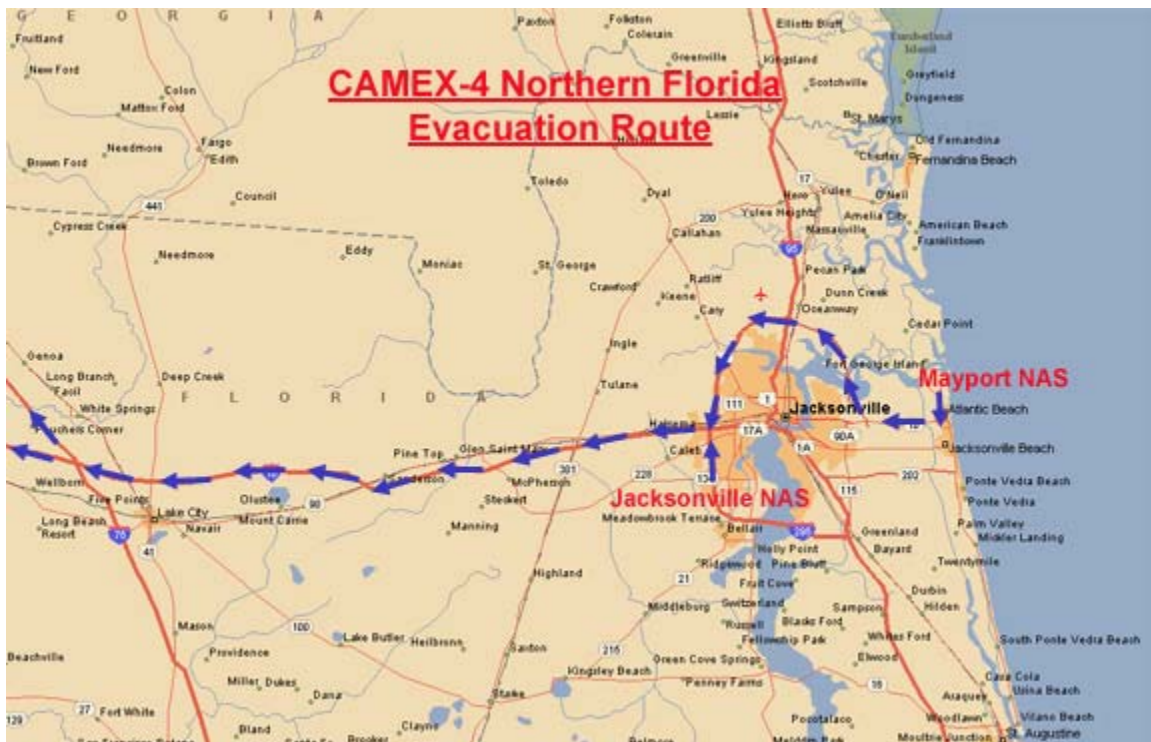
Category 3 – Winds of 111-130 mph; Storm surge 9'-12' above normal

Category 4 – Winds of 131-155 mph; Storm surge 13'-18' above normal

Category 5 – Winds greater than 155 mph; Storm surge higher than 18' above normal

General Evacuation Information:

When an evacuation order is given, it must be taken very seriously and you should proceed without hesitation. Decision-making criteria for an evacuation include size of storm, anticipated path of storm, anticipated storm surge, number of citizens affected and mobilization times. Yet having said that, many Florida residents still have spent several hours on congested highways or searching for available shelters. During Hurricane Floyd 1.2 million people were told to evacuate, but actually over 2 million did which only compounded the difficulty of the evacuation. The larger the storm, the greater the probability of traffic jams where extended travel time will be needed. Specific evacuation routes are given for locations throughout Florida depending on the location of the storm. It is very important that you review your particular evacuation route prior to the actual evacuation. It is recommended that you not vary from these routes no matter what the traffic may be like. Highway on and off ramps can be closed, as patrols may reverse lanes on all incoming traffic to accommodate the massive exodus. Other smaller roads may already be experiencing flooding or have unadvertised construction occurring on them that will stop you from using them. See map below for advertised routes from Mayport and Jacksonville.



If at all possible, it is recommended that you stay with friends or family outside the danger zone area. Hotels outside the danger area are another option. In choosing your destination, keep in mind that the hotels and other sheltering options in most inland metropolitan areas are likely to be filled very quickly in a hurricane evacuation event. Evacuation shelters are located throughout the state, however these can fill fast. Not all shelters open as planned and additional shelters may open as needed. Local media will announce shelters or you may call the Red Cross at (904) 358-8091 for additional information. Shelters are exactly that, just a shelter; the only amenities you will have are those you bring with you. For that reason, the following list may assist in your planning.

Shelter Supply Items:

- Supply of Water (One gallon per person per day)
- Supply of Non-Perishable or canned food
- Utensils (Can Opener, disposable plates, cups, forks, knives)
- Change of clothing (including rain gear)
- Hygiene items (soap, toothbrush, wash cloth, towel)
- Blankets or sleeping bags
- First aid kit (including prescription drugs / aspirin)
- Battery power radio, flashlight, batteries
- Credit cards and cash
- Books, cards, games

CAMEX-4 evacuation details:

Jacksonville NAS has given the CAMEX-4 project permission to remain and continue operations up until Condition 2 or 24 hours prior to estimated landfall. At that time, we will be required to evacuate the aircraft and personnel immediately from the base. Other CAMEX-4 deployment site locations may not have the same liberty; Key West mobile radars and Aerosonde personnel at Mayport NAS people may be required to evacuate 36-72 hours prior to estimated landfall.

Many of the actions that will take place during a CAMEX-4 evacuation will be decisions that will be made in real-time. Where we evacuate, and when or if we return will depend on the size of the storm, direction of the storm, remaining time in the campaign, and severity of damage to the area after a landfall, among other criteria. In the event an evacuation is called, our first priority will be to get the aircraft out. Any evacuation flight will not be a science sortie as safety of flight is primary in the event of evacuation in accordance with DFRC operations. Return of the aircraft to Jacksonville may or may not be a science sortie; depending upon return circumstances and flight/airfield conditions. An evacuation manifest shall be posted during the entire deployment, with alterations being made by the mission manager with crew and scientist change-outs. All persons on the evacuation manifest will be highly encouraged to have an overnight kit packed and ready for immediate movement. Essential personnel on the DC-8 include pilots, flight engineer, navigator, mission managers, techs, and operations engineers. The PIC, mission manager, operations engineer and Airborne Science contract site manager will determine all other passengers. The PIC will have final authority. At a minimum, some investigators on the DC-8 may be displaced from the transit so we may accommodate the aircraft ground crews for the DC-8 and ER-2. Depending on circumstances (eg. time of day), we may not be able to contact instrument investigators not on location prior to the aircraft leaving. Although we cannot wait for the arrival of investigators to launch the aircraft, PI's will be notified (regardless of time of day) as soon as time permits. Both aircraft (ER-2 & DC-8) are currently planned to evacuate to Warner Robbins AFB, GA. Depending on circumstances, we may have to evacuate to Eglin AFB, FL or possibly return to NASA Dryden. Below are some suggested items that should be followed for a successful evacuation. They are listed in order of conditions of readiness for step-by-step planning.

Condition 5 (Normal Condition)

- Operations as normal
- Read this document!
- Review your evacuation route
- Decide on evacuation plans

Condition 4 (72 hours)

- See above items
- Archive / Back-up instrument data
- Organize evacuation carpools

Pack spares and test equipment not actively used
Obtain prescriptions if needed

Condition 3 (48 hours)

See above items
Pack all equipment
Locate local shelters
Fill gas tank in car
Pack personal items
Withdraw cash

Condition 2 (24 hours)

Mandatory Evacuation!
Aircraft Departs
Load required equipment in cars
Checkout from Hotel
Instrument Investigators transit to evacuation site

Condition 1 (12 hours)

Take shelter!

Shortly after the aircraft depart and investigators are notified, a dedicated truck from NASA Dryden will be loaded for the evacuation site. Essential equipment for the aircraft (ER-2 and DC-8) will be staged in an area for quick loading when hurricane conditions forecast is at condition 3. This truck is primarily for aircraft ground support equipment. If there is instrument equipment that cannot be taken by car, and is absolutely needed, we will try to put it on this truck. At any time, between 22 and 16 hours prior to predicted landfall the base will close to all personnel. The project office (2-3 people) will remain at Jacksonville NAS to complete the preparations for the landfall. Equipment (that should be packed) will be stored in one of the safer rooms of the hangar. If the equipment is not packed, you should not assume that we would pack it for you, we may be forced to only place tarps over it where it will stay.

Only those people that are essential for operations should drive to the aircraft evacuation site. No dedicated offices have been assigned and space will be limited. The Project Office will compile a list for access to the alternate base and only skeleton instrument teams and flight crew will be permitted on. Those that carpool should drop off extra cars at the Jacksonville airport on the way. As long as possible, daily communication between the evacuation site and Jacksonville NAS will be maintained. When and if conditions allow, we will return to Jacksonville NAS as soon as permitted. During the time when CAMEX-4 is operating from the evacuation base, the project message phone will be maintained at MSFC. The number will be (256) 961-7959.

Those CAMEX-4 participants in the Florida Keys should be aware of additional concerns they have with evacuations. Large vehicles (i.e. Mobile Radars) will be asked to evacuate first and foremost, as early as 72 hours or more prior to estimated landfall. Again, the evacuation announcement will include a safe transit time. However, if you are trying to reach a northern location for landfall, you will now compete with 100s to 1000s of RVs. You should be well aware of the storm and evacuate early. Officials will often close the northbound highway around 4 p.m. as a safety precaution for motorists due to possibility of high winds and heavy rain on the small road and bridges. For up-to-date storm information on the Keys, you may call the Key West weather office at (305) 293-2306. We strongly recommend that Key West personnel have on hand a small hand-held Weather Radio that can be purchased for about \$9.99.

N-Pol personnel (2-3 people) will remain and secure the radar. They will be issued an auto placard that will allow them to continue teardown until 12 hours prior. At that time, they will evacuate to the Key West National Weather Service building at the airport. This building is rated for hurricane strength winds and will be the location of the KAMP base operations. This should

be considered like any other shelter, and the items on the shelter list above apply. The placard will allow the team to set-up N-Pol only after the road, electrical power lines, and emergency crews have been cleared by security.

Normal procedures for Andros Island require that the personnel evacuate up to 96 hours prior to estimated landfall. The Navy provides transportation to West Palm Beach where you will be responsible for your own actions. Personnel that get exceptions for Andros should ensure the Project Office is aware of the fact.

Florida Emergency Management asks that you travel north on the opposite side of the state from the storm. Therefore, if the storm comes from the east / southeast / south, you take Interstate-75, Highway 17, or Highway 27. If from the west / southwest take Highway 27, Highway 17, or Interstate-95. Mobile Radars that will re-deploy and make base prior to landfall should take into account the estimated time to location considering the public evacuations at every city along the Florida coast. It is highly recommended that no one "chase" the storm without two or more personnel per vehicle. Work shifts should apply so someone can always monitor the storm's location. As a personal recommendation, bring a camera and make sure you have film!



Your safety and well-being are of utmost importance. Our purpose is to better understand these storms but not risk anyone's life in the process. All Individuals should have their own plan including details that coordinate with others on the CAMEX-4 team. We will be well aware of the hurricane's existence, size, and location and should have no excuses for not having a well executed plan. Compared to the warning time we get in California for Earthquakes, we have an eternity with Hurricanes. Please use the time wisely!